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**CHANDRA MAULI AGRAWAL, Ph.D., P.E.**  
Interim Provost and Vice President for Academic Affairs  
The University of Texas, San Antonio (UTSA)

**Summary and Highlights of Roles and Achievements**  
(with gratitude to coworkers and students who have made it all possible)

I have worked at two University of Texas institutions: UTSA (comprehensive university) and at UT Health-SA (medical university).

**Interim-Provost and Vice President for Academic Affairs at UTSA (June 2016 – now):**

- *Oversee a large budget (>\$170M) and more than 2,200 faculty and staff with responsibility for ~31,000 students and all 162 academic degree programs in multiple colleges.*
- *Successfully implemented strategy of faculty cluster hiring in areas of strategic importance.*
- *Launched a plan (CLASS – Coordinated and Linked Approach to Student Success) based on predictive data analytics for rapidly improving retention and graduation rates. Saw an increase of 7 percent in 4-year graduation rates in one year.*
- *Successfully implemented a plan to launch UTSA Office of Online Learning and entered the online program market within 18 months with cyber security programs.*
- *Launched the Citymester® program for experiential learning for students in Honors College.*
- *Realigned resources to establish positions of Associate Provosts for Student Success, Military and Veteran Affairs, and Strategic Initiatives.*
- *Serve on the President's cabinet as Vice-President and participate in shaping the path forward for the university including enrollment management, retention and graduation, educational programming, research directions, investments in infrastructure growth, marketing, revenue generation and balanced budgets.*

**Vice President of Research (VPR) at UTSA (2013-2016):**

- *During 3-year tenure, new research grant funding increased more than twofold from ~\$30M to ~\$67M. Expenditures for 2016 research and sponsored programs increased more than 30% to reach all time high, reversing a multiple year declining trend at start of tenure.*
- *The Office of the VPR was restructured and principles of lean processes implemented to better serve faculty and students. A strategic plan for research was developed and implemented.*
- *Implemented UTSA-DC plan – taking researchers to Wash DC to visit with funding agencies.*
- *Negotiated and implemented undergraduate research immersion program at UTSA for students from Tec de Monterrey, Monterrey, Mexico.*
- *Launched university-wide Undergraduate Research Showcase (several hundred participants) and an undergraduate research journal.*

**Dean of College at UTSA (2005-2013):**

The College of Engineering saw the following growth:

- *More than 50% increase in student enrollment including >100% increase in graduate students.*
- *More than 75% increase in faculty (46 new faculty members were hired).*
- *More than 6-fold increase in annual research expenditures.*
- *Addition of new programs: 2 BS, 4 MS and one PhD.*
- *Creation of 5 new Centers and 2 Research Institutes.*
- *\$25M in donations for scholarships and endowed positions.*

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- *Addition of two new large educational buildings (combined cost ~\$180M).*
  - *Significantly increased number of female engineering faculty.*
  - *Lead College through successful SACS and ABET accreditations.*
  - *Launched nation's first bookless library.*

A summary of specific career achievements is provided here:

### **Administrative**

- *Currently manage a ~\$170 million budget for Academic Affairs.*
- *Previously managed the \$70+ million research and sponsored projects enterprise at UTSA. This role included oversight of administrative, compliance, infrastructure, marketing, and budget areas as well as growth strategy, and faculty and student support. Responsibility included every academic discipline on campus.*
- *Launched a Washington, DC initiative with periodic meetings with the White House and senior officials of the Department of Homeland Security and Department of Health and Human Services in Washington, DC regarding educational and research programs at UTSA.*
- *Served with University of Texas Regents and Chancellor on Task Force on Engineering.*
- *Worked with Graham Weston, co-founder of Rackspace Hosting, to plan and launch new Cloud Computing program at UTSA, underwritten by Mr. Weston's philanthropic foundation.*
- *As Vice President for Research worked with faculty and led development of a university level strategic plan for research at UTSA that recognizes and supports scholarship and research in all disciplines – from history and anthropology to neuroscience and cyber security.*
- *Served on team to develop 10 year university strategic and implementation plans for UTSA.*
- *As Dean led all aspects of the College of Engineering with 2,760 students and 92 faculty.*
- *Led the development of a 10-year college strategic plan and underlying implementation plan for the College of Engineering at UTSA.*
- *Served on core team to develop long-term master plan for campus.*
- *Led the team for a \$85M, 150,000sf new research and classroom building, including proposal writing for state funding, design process with architects, input during construction, and management of move-in by faculty and students.*
- *Conceived and launched the Texas Sustainable Energy Research Institute (TSERI), which is a university-wide organization. Recruited senior executive from Sandia National Labs to lead it.*

### **Educational**

- *Launched faculty cluster hiring.*
- *Worked closely with faculty to introduce hybrid or flipped classrooms where appropriate.*
- *While at the University of Texas Health Science Center at San Antonio led the formation of the graduate program in Biomedical Engineering - the first joint program with the University of Texas at San Antonio (UTSA). Required obtaining the agreement of more than 10 department chairs and 6 deans across the two institutions. Served as the Director of the program.*
- *As Dean, oversaw the launch of 2 new bachelor programs, and 4 masters degree programs.*
- *Negotiated an agreement with the Southwest Research Institute to launch a joint Ph.D. program with UTSA in Mechanical Engineering.*
- *Increased admission standards twice for College of Engineering.*
- *Encouraged faculty and staff excellence by establishing awards for recognizing performance.*
- *Worked closely with student organizations and student government to further their development and launch new activities.*

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## **Outreach to K-12**

- *Conceived of and launched the Interactive Technology Experience Center (iTEC) in collaboration with AT&T, to introduce K-12 children to STEM activities. Today, iTEC reaches thousands of children through its programs.*
- *Initiated the Getting Excited About Robotics (GEAR) competition at UTSA for regional elementary and middle schools. Up to 100 student teams have participated annually.*
- *Worked with Dean Kamen (inventor of the Segway scooter) to bring his FIRST robotics competition to San Antonio. Served as Chair of Alamo FIRST Board. Within two years the SA competition became the largest regional FIRST competition in the nation with several thousand participants from around the nation and other nations.*

## **Public relations and fund raising**

- *Fund raising: have helped raise more than \$25 million from donors for UTSA with experience at every stage from donor cultivation to actual ask.*
- *Engagement with printed and/or digital news media on a routine basis (more than 8800 Google records for "Mauli Agrawal" in Nov. 2017).*
- *Served as Vice Chairman of the San Antonio Chamber of Commerce, 2016.*
- *Authored op-eds published in San Antonio Express News and the Rivard Report.*
- *Accompanied Mayor Ron Nirenberg as educational representative on sister-city delegation to Darmstadt, Germany, Oct. 2017.*
- *Selected for National Security Forum at Air Force War College, Maxwell AFB.*
- *Accompanied former San Antonio Mayor Julian Castro (later HUD Secretary) as educational representative on trade delegations to nations such as China, India, and Israel.*
- *Worked closely with San Antonio Mayor Julian Castro and UTSA President to negotiate a research contract worth \$50M with CPS Energy for Texas Sustainable Research Institute.*
- *Accompanied San Antonio Mayor Phil Hardberger and other city officials on sister city visit to Dresden, Germany.*
- *Serve/Served on multiple non-profit community boards (5 current).*
- *Served as the 2006 President of the Society for Biomaterials (elected national position).*
- *Served on the National Boards of the Society for Biomaterials (10 years) and the Biomedical Engineering Society (3 years).*
- *Selected for Joint Civilian Orientation Course by Office of Secretary of Defense.*

## **Academic**

- *Published 314 scientific publications (116 papers in refereed journals; Google Scholar: >12,140 citations, h index 52).*
- *Co-authored or edited several books – including textbook published in 2014.*
- *Delivered 76 invited, plenary, or keynote lectures in a dozen countries.*
- *Grants: raised approximately \$10M for research as PI or Co-Investigator.*
- *Serve/Served on the editorial board or as guest editor of 11 scientific journals.*
- *Serve on the Board of the College of Engineering and Sciences at Clemson University.*
- *Continue to teach classes and conduct research in present role.*

## **Honors and Awards:**

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- *Fellow of the American Association for the Advancement of Science (AAAS), 2017*
  - *Inducted into the National Academy of Inventors, 2016*
  - *Awarded the 2010 Palmaz award for Innovation in Healthcare and Biosciences.*  
*Other Palmaz winners include Nobel Laureate W.E. Moerner, Julio Palmaz (inventor of the intravascular stent), Leroy Hood (inventor of DNA sequencer), Robert Langer (father of regenerative medicine), Dean Kamen (inventor of Segway and founder of FIRST robotics) and Francisco Cigarroa (Chancellor, UT System)*
  - *Testified before a US Congressional committee about the Future of Cloud Computing, 2015.*
  - *Service Award (national), Society for Biomaterials 2013*
  - *Fellow of the International Union of Societies for Biomaterials, 2008.*
  - *Fellow of American Institute for Medical and Biological Engineering, 2003 (reserved for the top 3% of profession).*
  - *Recognized as Best Biomedical Engineering Professor by Student Council, 2014.*
  - *Received the San Antonio Healthcare Hero Award, San Antonio Business Journal, 2007.*
  - *UT Chancellor's Entrepreneurship and Innovation Award, 2007, Univ. of Texas System.*
  - *Elected as 2006 President of the Society for Biomaterials – international professional society.*

### **Entrepreneurship and Industry**

- *Currently Board member and co-founder of Cardioate, Inc., a cardiovascular device company.*
- *Inventor: 15 patents issued, 13 pending and others in preparation. Several licensed to industry.*
- *Appointed by Governor Perry to Texas Emerging Technology Fund Committee. This is a state owned \$200M venture capital fund. Served 2008-2011 reviewing business plans and making recommendations to the Governor on investments (multi-million dollars) in companies.*
- *Initiated the creation of the Center for Innovation and Technology Entrepreneurship (CITE), a collaboration between the Colleges of Engineering and Business. CITE now holds a \$100k Student Technology Venture competition and is responsible for helping launch several student-led spinoff companies annually.*
- *Launched several technology start-up companies.*
- *Co-founded Xilas Medical (later Diabetica, Inc.). Served as CEO for 3 yrs. through R&D phase.*
- *Worked as automobile engineer for British Leyland subsidiary.*

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## CURRICULUM VITAE

### I. GENERAL INFORMATION

#### A. Personal Data:

Citizenship U.S.A.  
Wife Susan Robinson Agrawal  
Children Ethan Agrawal (24), Serena Agrawal (21)  
Hobbies Oil painting, photography, outdoors

#### B. Education:

1989 Ph. D. Mechanical Engineering (Materials Science) Duke University  
1985 M. S. Mechanical Engineering Clemson University  
1982 B. Tech. Mechanical Engineering Indian Inst. of Technology  
Kanpur (India)

#### C. Academic Appointments:

2016 -present Interim Provost and Vice President for Academic Affairs  
The University of Texas at San Antonio  
2014-2016 Vice President for Research  
The University of Texas at San Antonio  
2013-2014 Interim Vice President for Research  
The University of Texas at San Antonio  
2006-2013 Dean, College of Engineering  
The University of Texas at San Antonio  
2005-2006 Interim-Dean, College of Engineering  
The University of Texas at San Antonio  
2004-2010 Director, Institute for Bioengineering and Translational Research  
The University of Texas at San Antonio  
2003-2005 Associate Dean for Graduate Studies and Research  
College of Engineering, The University of Texas at San Antonio  
2003-2005 Director, Biomedical Engineering Program  
The University of Texas at San Antonio and The University of Texas Health Science  
Center at San Antonio  
2003-present Professor  
College of Engineering  
The University of Texas at San Antonio  
2002-2013 Professor  
Department of Orthopaedics  
The University of Texas Health Science Center at San Antonio  
2000-2005 Director, Center for Clinical Bioengineering  
The University of Texas Health Science Center at San Antonio  
1997-2005 Director, Orthopaedic Bioengineering  
Department of Orthopaedics  
The University of Texas Health Science Center at San Antonio  
1995-2002 Associate Professor with Tenure  
Department of Orthopaedics  
The University of Texas Health Science Center at San Antonio  
1995-1998 Adjunct Associate Professor  
Division of Biomedical Engineering  
The University of Texas at Austin  
1992-1997 Assistant Director  
NSF Center for the Enhancement of Biology-Biomaterials Interface  
The University of Texas Health Science Center at San Antonio  
1991-1998 Director of Orthopaedic Biomaterials  
Department of Orthopaedics

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1991-1995	The University of Texas Health Science Center at San Antonio Assistant Professor Department of Orthopaedics
1991-1995	The University of Texas Health Science Center at San Antonio Adjunct Assistant Professor Division of Biomedical Engineering
1990-1991	The University of Texas at Austin Research Assistant Professor Department of Biomedical Engineering
1989-1991	Duke University Adjunct Assistant Professor Department of Mechanical Engineering & Material Science
1986-1989	Duke University Teaching/Research Assistant Department of Mechanical Engineering & Material Science
1983-1986	Duke University Teaching Assistant Department of Mechanical Engineering, Clemson University

#### D. Other Employment

2000-2003	Founder and CEO (part-time), Xilas Medical, Inc. (later Diabetica, a diabetes care company)
1982-1983	Engineer, Automotive division, Ashok-Leyland Ltd., India

#### E. Consulting

2012-2014	Valero Corp. (assist with award of college scholarships)
2013	Wayne State University (establishment of BME program)
1999-2004	Consultant for Depuy Orthopaedics (a Johnson and Johnson company)
1993-1995	Consultant for Osteobiologics Inc., (San Antonio company commercializing technology invented by Agrawal and associates)

#### F. Certification and Licensure:

Professional Engineer State of Texas 02/28/92 License #71748

#### G. Honors and Awards:

- Fellow of the American Association for the Advancement of Science, 2017.
- Inducted into the National Academy of Inventors, 2016
- Invited to testify before a US Congressional committee about the Future of Cloud Computing, 2015.
- Recognized as *Best Biomedical Engineering Professor 2014* by Engineering Student Council
- Society For Biomaterials Award for Service (national), 2013
- Palmaz Award for Innovations in Healthcare and the Biosciences, 2010  
Other awardees include Julio Palmaz (inventor of the intravascular stent), Dean Kamen (inventor of the Segway and founder of FIRST robotics), Robert Langer (father of regenerative medicine), Leroy Hood (inventor DNA sequencing machine) and Francisco Cigarroa (Chancellor, UT System).
- Appointed by Texas Governor Rick Perry to Texas Emerging Technology Fund Committee 2008
- Fellow of the International Union of Societies for Biomaterials. Inducted in Amsterdam, 2008
- San Antonio Healthcare Hero Award, San Antonio Business Journal, 2007
- Chancellor's Entrepreneurship and Innovation Award, 2007, Univ. of Texas System
- Elected 2006 President of the Society for Biomaterials (SFB). SFB has members from over 25 countries.
- Fellow of American Institute for Medical and Biological Engineering, 2003 (reserved for the top 3% of profession)
- Elected Secretary/Treasurer of the Society for Biomaterials (SFB) 2001
- Scientific program chair, 27th Annual Meeting of the Society for Biomaterials, St. Paul, 2001. Largest annual biomaterials meeting in the world.
- Protocol developed by Agrawal et al. accepted as basis for ASTM national standard F1877, 1998
- Sigma Xi, 1994
- Who's Who In Science and Engineering, 1994
- Orthopaedic Research and Education Fdn. Order of Merit Cum Laude, 1991, 1992, 1993
- National Science Foundation - ERC Fellow, 1990-1991

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## II. TEACHING

### A. Classroom/Laboratory Courses:

- BME 1002 Introduction to Biomedical Engineering (still teach this course in 2017)
- ORTO 6002 Biomedical Engineering Lab Rotation
- BME 6813 Biomaterials (still partly taught this course in 2016)
- ME 5813 Biomaterials
- ORTO 6001 Biomaterials
- BME 397S Research Problems
- Ortho. Biomaterials (UTHSCSA)
- Ortho. Research (UTHSCSA)

### B. Research Supervision (details /names available upon request)

#### *Postdoctoral Fellows/Residents*

Served as research supervisor for 37 Postdoctoral Fellows and Medical Residents

#### *Ph.D. and Masters*

Served as major advisor for 17 Ph.D. and M.S. students

Served on the research committee for 11 Ph.D. and M.S. students

#### *Medical Students*

Supervised 26 Medical Student research projects

#### *Undergraduate Students*

Oversaw 27 undergraduate research projects

#### *High School Students*

Supervised 17 high school student research projects in the laboratory

## III. RESEARCH

### A. Areas of Research Interest

Orthopaedic and cardiovascular biomaterials and implants, Biomaterials and biomechanics, Tissue engineering, Biodegradable materials, Tissue-biomaterial interfaces, Wear in total joint prostheses.

### B. Research Support (*Details available upon request*)

Raised more than \$9,690,000, as Principal Investigator or Co-Investigator from various funding agencies such as NIH, NSF, DoD, State of Texas, and various foundations and corporations.

### C. Bibliography:

**Google Scholar: >12,118 citations, h index 52**

#### 1. Books/Book Chapters

##### 1a. Books

1. "Introduction to Biomaterials: Basic Theory with Engineering Applications", **Agrawal**, Ong, Appleford and Mani, Cambridge University Press, Text book, ISBN 978-0-521-11690-9, 2014
2. "Engineering Biomaterials for Medical Applications" Vol 1. Eds. T.S. Hin, **C.M. Agrawal**, 2004
3. "Synthetic Bone Graft Substitutes" Ed. Cato Laurencin; section editor: **C.M.Agrawal**, ASTM STP ISBN 0-8031-3356-1, 2003.
4. "Synthetic Bioabsorbable Polymers for Implants" Eds. **C.M. Agrawal**, J. Parr, S. Lin, ASTM STP 1396. ISBN 0-8031-2870-3, 2000.
5. "Proceedings, 17<sup>th</sup> Southern Biomedical Engineering Conference", Eds. **C.M. Agrawal**, K.A. Athanasiou, pub. Southern Biomedical Engineering Conf., Minneapolis, 1998, ISBN 0-7803-4512-6

##### 1b. Book Chapters

1. T.S. Karande and **C. Mauli Agrawal**, Functions and Requirements of Synthetic Scaffolds in Tissue Engineering, eds. Cato Laurencin and Lakshmi Nair, CRC Press Boca Raton, 2008 (ISBN:13:978-1-4200-5182-7)

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2. X. Wang, K.A. Athanasiou and **C.M. Agrawal**: 'Fracture Toughness Tests of Bone-Implant Interfaces', *Mechanical Testing of Bone and the Bone-Implant Interface*, eds. Y. A. An and R. A. Draughn, CRC Press, Boca Raton, 1999.
  3. **C.M. Agrawal**, J. Mabrey, and D.M. Micallef: 'The Wear of Ultrahigh Molecular Weight Polyethylene', in the *Encyclopedic Handbook of Biomaterials and Bioengineering*, ed. D.Wise et al., Marcel Dekker, New York, 1995.
  4. K.A. Athanasiou, G. Niederauer, and **C.M. Agrawal**: 'Applications of Biodegradable Lactides and Glycolides in Podiatry', *Clinics in Podiatric Medicine and Surgery*, ed. A.S. Landsman, W.B. Saunders Co., Philadelphia, p 475-496, 1995.
  5. **C.M. Agrawal**, K.A. Athanasiou, G. Niederauer, and D.M. Micallef: 'The Use of PLA/PGA in Orthopaedic Implants', in the *Encyclopedic Handbook of Biomaterials and Bioengineering*, ed. D. Wise et al., Marcel Dekker, New York, 1995.

**2. Papers in Refereed Journals (Published or In Press)**

*More than 116 papers published (see appendix for listing).*

**3. Conference Papers (Published or Accepted)**

*More than 195 conference papers published (see appendix for listing)*

**4. Book Reviews**

1. **Agrawal, C.M.**: 'Ultrahigh Molecular Weight Polyethylene (UHMWPE): Time to Change? Special Topic Article,' *Biomaterials Forum*, 16(3), p 5, 1994.
2. **Agrawal, C.M.**: Book Review of 'Particulate Debris from Medical Implants', Author Kenneth St. John, *Biomaterials Forum*, 1994. *Biomaterials Forum* is the official newsletter of the Society for Biomaterials and is sent to members worldwide.

**5. Scientific Lectures, Seminars**

(In addition to presentations given at national conferences as shown above in 3)

1. 06/14 Invited Lecture, Texas A&M University Texas  
*Cardiovascular Solutions: Aneurysm Repair, Hemorrhage Control and Pressure Sensors*
2. 12/09 Invited Lecture, Military Medicine Symposium, San Antonio Texas  
*Advances in Tissue Engineering*
3. 09/09 Invited Lecture, Suranaree University, Thailand  
*Biomedical Research*
4. 09/09 Invited Lecture, Indian Institute of Technology, Kanpur, India  
*The Common Challenge in Tissue Engineering and Drug Eluting Stent Research*
5. 09/09 Asian Particle Technology Conference, New Delhi, India  
*The Criticality of Blood Flow: From Tissue Engineering to Drug Eluting Stents*
6. 09/09 Invited Lecture, Indian Institute of Technology, Bombay, India  
*Cardiovascular Research*
7. 05/09 Keynote Lecture, 25<sup>th</sup> Annual Southern Biomedical Engineering Conference, Miami, FL  
*Enabling Blood Flow: From Tissue Engineering to Drug Eluting Stents*
8. 04/07 Invited Lecture, University of Texas, Austin  
*Surface Modification for Cardiovascular Applications*
9. 12/06 Invited Lecture, Reliance Biosciences, Inc, Mumbai, India  
*Tissue Engineering*
10. 12/06 Invited Lecture, Indian Institute of Technology, Kanpur, India  
*A Novel Drug Delivery System*
11. 12/06 Plenary Lecture, BIND-06, Indian Institute of Technology, Kanpur, India  
*Scaffolds for Tissue Engineering*



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12. 12/05 Invited Hunter Lecturer, Clemson University  
*Therapeutic Self-Assembled Monolayers*
  13. 12/05 Invited lecture, Busan Interventional Meeting, Busan, S. Korea  
*Tissue Engineering for Cardiovascular Applications*
  14. 12/05 Invited lecture, Busan Interventional Meeting, Busan, S. Korea  
*A Novel Stent Drug Delivery System using Therapeutics Self-Assembled Monolayers*
  15. 10/05 Invited lecture, at Disease Management Association Annual Meeting, San Diego  
*Technology in Disease Management*
  16. 10/05 Invited lecture, at Rice University  
*Therapeutic Self-Assembled Monolayers*
  17. 09/05 Invited lecture, at Academy of Nanomedicine, Johns Hopkins University  
*Novel Drug Delivery: Therapeutic Self-Assembled Monolayers*
  18. 06/05 Invited lecture, at Tshingua University, Beijing, China  
*Tissue Engineering Scaffolds: Materials and Architecture*
  19. 11/04 Invited lecture, at Rice University, Dept. of Bioengineering  
*Tissue Engineering - Back to Basics*
  20. 10/04 Invited lecture, at Johns Hopkins University  
*Scaffolds for Cartilage and Bone Repair*
  21. 08/04 Invited lecture, at Purdue University  
*Synthetic Scaffolds for Tissue Engineering – What Do We Know?*
  22. 07/04 Invited lecture, Nano Summit 2004, Houston, TX  
*Nanomaterials-Based Technologies for Medical Applications*
  23. 03/04 Invited lecture, Tissue Engineering and Regenerative Medicine Conference, London
  24. 01/04 Invited lecture, Department of Biology, UTSA  
*Cell-material Interactions in Tissue Engineering*
  25. 10/03 Invited speaker, at Johns Hopkins University  
*Cartilage Tissue Engineering*
  26. 08/03 Invited faculty, at the Pittsburgh Bone Symposium  
*Basics of Tissue Engineering Scaffolds*
  27. 08/03 Invited faculty, at Rice University Advances in Tissue Engineering short course  
*Biocompatibility Issues with Tissue Engineered Implants*
  28. 04/03 Invited lecture, Society for Biomaterials Annual Meeting  
Workshop: *Tissue Engineering: The Essential Elements*
  29. 11/02 Invited faculty, at the Cold Spring Harbor Laboratory  
*Scaffolds for Tissue Engineering*
  30. 01/02 Invited lecture, (invited by NASA) at the Am. Inst. for Aeronautics and Astronautics Microgravity  
Plenary Session, Reno, NV  
*Biomaterials and Tissue Engineering - A Role for Microgravity?*
  31. 10/01 Invited faculty, at the NATO-Study Advance Institute, Algarve, Portugal  
*Biodegradable Polymers for Orthopaedic Applications*
  32. 10/01 Invited faculty, at the NATO-Study Advance Institute, Algarve, Portugal

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*In-Vitro Degradation Testing of Polymeric Scaffolds*

33. 02/01 Keynote Address, at the 20<sup>th</sup> Southern of Biomedical Engr. Conference, Birmingham, AL
34. 12/00 Keynote Address, at the 10<sup>th</sup> International Conference of Biomedical Engr., Singapore  
*Scaffold Design for Tissue Engineering*
35. 12/00 Invited faculty, at the Symposium on Tissue Engineering, Singapore  
*Scaffolds for Tissue Engineering*
36. 11/00 Invited faculty/panelist, at the ASTM Symposium on Bone Substitute Materials, Orlando, FL  
*Materials for Bone Substitutes*
37. 10/00 Invited lecture, at the International Workshop on Bone Substitutes, Davos, Switzerland  
*Polymeric Scaffolds as Candidates for Bone Substitutes*
38. 08/00 Invited lecture, at Zimmer Orthopaedics, Warsaw, IN  
*Current Research Topics in Orthopaedics*
39. 08/00 Visiting Professor, at Rice University, Houston, Texas  
*Prefabricated Polymer Scaffolds*
40. 06/00 Invited speaker, at Biomaterials Day, Birmingham, AL  
*Biodegradables for Orthopaedic Applications*
41. 05/00 Invited faculty, at 6<sup>th</sup> World Biomaterials Congress, Hawaii  
*Biodegradable Polymers for Orthopaedic Applications*
42. 04/00 Visiting Professor, at Virginia Tech  
*Scaffolds in Tissue Engineering: Past and the Future*
43. 01/00 Visiting Professor, at Harvard Medical School (Dental Division), Boston  
*Scaffolds in Tissue Engineering*
44. 11/99 Invited lecture, at National Taiwan University, Taipei, Taiwan  
*Bioengineering Research in Orthopaedics*
45. 11/99 Invited lecture, at Yang-Ming University, Taipei, Taiwan  
*"Issues in Tissue Bioengineering"*
46. 11/99 Invited lecture, at the Veterans General Hospital, Taipei, Taiwan  
*Issues in Orthopaedic Bioengineering*
47. 11/99 Invited faculty, at the Annual Meeting Chinese Society for Materials Science, Hsinchu, Taiwan  
*Biodegradable Polymers in Tissue Engineering*
48. 11/99 Invited lecture, ASTM Symposium: Synthetic Biodegradable Polymers for Implants, Kansas City  
*Biodegradable Polymers and Tissue Engineering*
49. 09/99 Invited faculty, at Duke University, Durham NC  
*Polymeric Scaffolds for Tissue Engineering*
50. 08/99 Invited faculty, at the Advances in Tissue Engineering, Houston, TX  
*Prefabricated Polymer Scaffolds*
51. 08/99 Invited faculty, at the SFB Short Course on The Tissue Engineering Toolbox: Biomaterials, Genes, and Cells, Scottsdale, AZ  
*Biodegradable Materials for Scaffolds and Supports*
52. 03/99 Invited lecture, at the IBC's 2<sup>nd</sup> Annual Conference on Orthopaedic Biomaterials, Boston  
*Salient requirements for bone and cartilage scaffolds*

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53. 08/98 Invited lecture, at the NMHCC Tissue Engineering Congress, Boston, MA  
*Engineering scaffolds for bone and cartilage repair*
  54. 08/98 Invited lecture, at the Advances in Tissue Engineering, Houston, TX  
*Biocompatibility issues with biodegradable scaffolds*
  55. 07/98 Invited lecture, at Sulzer Orthopaedics, Austin TX  
*Current Biomaterials Research in Orthopaedics*
  56. 08/97 Invited lecture, at the NMHCC Tissue Engineering Congress, Boston, MA  
*PLA-PGA scaffolds for cartilage and bone repair*
  57. 05/97 Invited lecture, at the ASTM Tissue Engineering Workshop, St Louis  
*Biodegradable Polymers in Tissue Engineering*
  58. 10/96 Invited lecture, at Dental School Lecture Series Fall Session, University of Texas Health Science Center at San Antonio, Texas  
*Current Topics in Orthopaedic Research*
  59. 03/96 Invited lecture, at the International Conference on the Problems of the Knee: An Asian Perspective, Allahabad, India  
*Total Knee Prostheses and Related Research*
  60. 11/95 Invited lecture, International Mechanical Eng. Congress and Expo. (ASME), San Francisco  
*The Wear Failure of Ultrahigh Molecular Weight Polyethylene in Total Joint Prostheses*
  61. 10/95 Invited lecture, at the Clinical Orthopaedic Society 1995 Meeting, San Antonio  
*Advances in Biomaterials*
  62. 03/95 Invited lecture, at the Chair für Biokompatible Werkstoffe and Bauweisen, Edgenössische Technische, Zurich, Switzerland  
*The Fabrication and Characterization of Biodegradable Orthopaedic Implants*
  63. 02/95 Invited lecture, at the the Motilal Nehru Medical College, Allahabad, India  
*Future Directions in Orthopaedic Biomaterials*
  64. 10/94 Keynote Address, 1994 Annual Fall Mtg. of the Biomedical Engineering Society, Tempe, AZ  
*The Fracture Toughness of Bone Using a Sandwich Specimen*
  65. 09/94 Visiting Professor at Rice University, Houston, Texas  
*The Use of PLA-PGA Polymers in Orthopaedics*
  66. 04/94 Center for Enhancement of the Biology-Biomaterials Interface, UTHSCSA  
*Effects of Surface Roughness on the Wear of UHMWPE*
  67. 04/94 Continuing Education Course on Uncemented Total Joint Arthroplasty, San Antonio, Texas  
*Advances in Biomaterials*
  68. 02/94 Keynote Address, The 4th Annual Mtg, Australian Society for Biomaterials, Sydney, Australia  
*"PLA and PGA Polymers and their Applications In Orthopaedics"*
  69. 02/94 Invited lecture, at Monash University, Melbourne, Australia  
*The Wear of UHMWPE in Total Joint Prostheses*
  70. 11/93 Center for Enhancement of the Biology-Biomaterials Interface, UTHSCSA  
*The Characterization of Wear of UHMWPE*
  71. 01/93 Invited seminar at MONERECO Engineering College, Allahabad, India  
*Current Research in Orthopaedic Biomaterials in the US*
  72. 02/93 Visiting European Fellows in Orthopaedics, Univ. of Texas Health Science Center, San Antonio  
*Friction and Wear in Total Joint Prostheses*

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- 73. 05/92 Center for Enhancement of the Biology-Biomaterials Interface, University of Texas Health Science Center at San Antonio  
*Development of Longer Lasting Total Joint Prostheses*
  - 74. 03/92 Visiting European Fellows in Orthopaedics, Univ. of Texas Health Science Center, San Antonio  
*Development of a Biodegradable Fracture Fixation Plate*
  - 75. 12/91 Inauguration of Orthopaedic Research Division Univ. of Texas Health Sci. Center, San Antonio  
*Current Research Topics in Orthopaedic Biomaterials*
  - 76. 10/91 Southwest Research Institute, San Antonio  
*Engineering Problems Associated with Total Joint Prostheses*
  - 77. 09/90 University of Texas Health Science Center at San Antonio  
*Development of an Intravascular Biodegradable Stent*

#### IV. SERVICE

##### A. Community Service

###### Boards/Advisor

- 2016-2017 United Way – Master’s Leadership Program, Chair Board of Directors
- 2013-2016 BiomedSA, Board Member
- 2013-present Texas Research Park Foundation, Board Member
- 2012-present The Health Cell, San Antonio, Advisor
- 2011 SA Chamber of Commerce, Chair - Healthcare and Biosciences Committee
- 2011-present San Antonio Medical Foundation, Board Member (member, Land Use Committee)
- 2010-2015 FIRST Robotics Alamo Region, Board Member, (Chairman 2010-2013)
- 2009-present Clemson University, College of Engineering and Science, Advisory Board Member,
- 2009-2017 United Way – Master’s Leadership Program, Board Member
- 2008-present Southwest Research Institute, Board of Trustees Member
- 2008-2011 San Antonio Clean Tech Forum, Advisory Board Member
- 2008-2011 Keystone School, San Antonio, Board of Directors Member
- 2008-2011 Texas Emerging Tech. Fund Advisory Committee Member (appointed by Governor)

###### Other

- 1995-2005 Research Mentor, Summer Research Program, Northside Independent School District, San Antonio
- 1993-1994 Research Mentor, Gifted Student Program, Northside Independent School District, San Antonio
- 1993 Judge, Regional Science Fair for High Schools
- 1992 Mentor, John Glenn Elementary School Mentorship Program, San Antonio
- 1987-1991 Volunteer Instructor, North Carolina Therapeutic Riding Center (for the handicapped),

##### B. City Delegations

- 2017 Member, San Antonio Mayor’s Sister City Delegation to Darmstadt, Germany
- 2013 Member, San Antonio Mayor’s Trade Delegation to India
- 2012 Member, San Antonio Mayor’s Trade Delegation to Israel
- 2011 Member, San Antonio Mayor’s Trade Delegation to China
- 2009 Member, San Antonio Mayor’s Delegation to Dresden, Germany
- 2008 Member, San Antonio City Delegation to the Canary Islands, Spain
- 2001 Member, San Antonio Civic Leaders’ Delegation to San Diego
- 2000-2003 Member, Bioengineering Blue Ribbon Committee, Chamber of Commerce, San Antonio

##### C. Professional Activities:

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### **1. Current Professional and Scientific Organizations and Societies**

1998- present	Biomedical Engineering Society
1996- present	American Academy of Orthopaedic Surgeons*
1995- present	Tissue Engineering Society
1995-1998	American Society for Mechanical Engineers
1994- present	Sigma XI Society*
1992- present	Orthopaedic Research Society*
1992-2008	American Society for Testing and Materials (ASTM)
1991-present	Society for Biomaterials*
1988-2000	ASM International

\*Election/nomination required

### **2. Past and Current Positions and/or Offices Held in Professional Organizations**

2014	Member, Off-site Reaffirmation Committee SACS Commission on Colleges
2011-2013	Member, Finance Committee <i>Society For Biomaterials (National)</i>
1999-2009	Member, Board of Directors <i>Society For Biomaterials (National)</i>
2005-2007	Elected President (2006-07) and President-Elect (2005-06), <i>Society For Biomaterials, (National)*</i>
2004-2007	Appointed Vice-Chairman of the Committee on Publications (3 years) <i>ASTM International</i>
2003-2006	Member, Board of Directors <i>Biomedical Engineering Society (National)</i>
2001-2004	Elected to Secretary-Treasurer Elect (2 years) and Secretary-Treasurer (2 years), <i>Society for Biomaterials*</i>
2000-2001	International Advisory Committee, <i>10<sup>th</sup> International Conference on Biomedical Engineering (Singapore)</i>
1999-2000	Elected to Board of Directors (Member-at-Large) <i>Society for Biomaterials*</i>
1999-2003	Board of Directors <i>Southern Biomedical Engineering Conference</i>
1999	International Advisory Committee, <i>1<sup>st</sup> International Conference on Medical Implants (International)</i>
1999-2006	Publications Committee (Vice Chair 2004 –present) <i>ASTM (National)</i>
1998-1999	Chair, Orthopaedic Biomaterials Special Interest Group, <i>Society for Biomaterials (National)</i>
1997-1999	Member, Steering Committee, <i>Southern Biomedical Engineering Conf. (National)</i>
1997-1998	Vice Chair, F4 Subcommittee on Tissue Engineering Biomaterials, <i>ASTM (National)</i>
1997-2009	Member, Executive Council, <i>Society for Biomaterials (National)</i>
1997-1999	Chair, Membership Committee, <i>Society for Biomaterials (National)</i>
1997-2004	Member, Finance Committee, <i>Society for Biomaterials (National)</i>
1997-1998	Member, Long Range Planning Committee, <i>Society for Biomaterials (National)</i>
1996-2008	Member, F4 Committee on Medical Devices, <i>ASTM (National)</i>
1996-1997	Member, Committee for Education and Professional Development, <i>Society for Biomaterials (National)</i>
1993-1997	Member, Sub-committee on Biomaterials Database

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1993-1995      *Society for Biomaterials (National)*  
Member, Sub-committee on Member Status Development  
1991-1992      *Society for Biomaterials (National)*  
Member, Advisory Committee  
*Southwest Research Consortium Biomaterials/Bioassessment Initiative, San Antonio (County).*

**3. Other Professional Activities** (e.g., National and State Consultanting, Review Panels and Committees, Editorial Boards, Continuing Education Lectures Presented, etc.)

**3a: Editor/Editorial Board**

2009-present      *Member, Editorial Board, International Journal of Materials Engineering Innovation*

2007-present      *Member, Editorial Board, IEEE Systems Journal*

2006-present      *Member, Editorial Board, Tissue Engineering and Regenerative Medicine (TERM)*

1999-2014      *Member, Editorial Board for Journal of Biomedical Materials Research (JBMR)*  
Official Journal of the Society for Biomaterials USA, and the Japanese, Australian and Korean Societies.

1997-present      *Member, Editorial Board for Journal of Biomedical Materials Research - B (Applied Biomaterials)*

2007-2008      *Guest Editor, Special Issue of Journal of Medicinal Chemistry*

2005-2008      *Member, Editorial Board, Nanomedicine*

2004-2009      *Member, Editorial Board Journal of ASTM International (JAI)*

2001-2003      *Member, Editorial Board for e-biomed The Journal of Regenerative Medicine*

1999-2000      *Guest Editor, two Special Issues of the journal Biomaterials on Orthopaedic Polymers*

1997-2008      *Member, Editorial Board for Tissue Engineering*

1996-2000      *Contributing Editor for Biomaterials Forum: Publication of the Society for Biomaterials*

1994-1996      *Assistant Editor for Biomaterials Forum: Publication of the Society for Biomaterials*

**3b. Meeting/Symposium Organizer**

*Program Chair, 27th Annual Meeting of the Society for Biomaterials, St. Paul, 2001.*  
Meeting received approximately 700 papers and had an attendance of 1200-1500 people

*Chair, MRS Symposium on Orthopaedic/Dental Biomaterials, Boston, 2000.*  
Symposium had 6 sessions with a total of 65 papers

*Organizer/Co-Chair, Workshop on Biodegradable Polymers, World Biomaterials Congress Hawaii, 2000*  
Attendance 70 –100

*Assistant Program Chair, 25th Annual Meeting of the Society for Biomaterials, Providence, 1999*  
Meeting had more than 600 papers and posters

*Chair, ASTM Symposium on Synthetic Bioabsorbable Polymers for Implants, Kansas City, 1999.*  
Two day symposium with participants from U.S. and Europe. Attendance 70 –100

*Advisory Board, Chair, IBC Conference on Orthopaedic Biomaterials, Cambridge, 1999*

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*Advisory Board, Chair, NMHCC Conference on Orthopaedic Tissue Engineering, Boston, 1998*

*Program Chair, 17th Southern Biomedical Engineering Conference, San Antonio, TX, 1998*

Two day meeting with more than 150 paper presentations. Attendance 150 –200

### **3c. Session Chair/Organizer**

04/09 Chair, Session on Scaffolds for Tissue Engineering  
*Annual Meeting of the Society for Biomaterials, San Antonio, TX*

04/09 Chair, Panel Discussion on World Initiatives in the Field of Tissue Engineering  
*Annual Meeting of the Society for Biomaterials, San Antonio, TX*

05/08 Chair, Session on Tissue Engineering  
*8<sup>th</sup> World Biomaterials Congress, Amsterdam*

12/06 Co-Chair, Session on Tissue Engineering  
*BIND-06, Indian Institute of Technology, Kanpur, India*

04/05 Chair, Session on Tissue Engineering Scaffolds  
*Annual Meeting of the Society for Biomaterials, Memphis TN.*

05/04 Co-Chair, Session on Tissue Engineering  
*7<sup>th</sup> World Biomaterials Congress, Sydney, Australia*

05/03 Chair, Session on Tissue Engineering  
*Annual Meeting of the Society for Biomaterials, Reno, NV.*

10/01 Chair, Session on Polymer Science  
*Symposium on Polymer Based Systems on Tissue Engineering, Replacement and Regeneration, NATO-ASI, Alvor, Portugal*

11/00 Chair, Session on Tissue Engineering  
*Symposium on Orthopaedic/Dental Biomaterials, Materials Research Society*

04/00 Chair, Session on Orthopaedic Bioengineering  
*19<sup>th</sup> Southern Biomedical Engineering Conference, Blacksburg, VA*

11/99 Organizer/Chair, Symposium on Synthetic Biodegradable Polymers  
*ASTM Winter Meeting, Kansas City, KS*

07/99 Organizer/Chair, Short Course: Tissue Engineering Tool Box  
*Society for Biomaterials, Scottsdale, AZ*

05/99 Chair, Session on Tissue Engineering  
*18th Southern Biomedical Engineering Conference, Clemson, SC*

05/99 Chair, Session on Scaffolds  
*25th Annual Meeting of the Society for Biomaterials, Providence, RI*

04/99 Organizer/Chair, Workshop on Cartilage Repair  
*25th Annual Meeting of the Society for Biomaterials, Providence, RI*

03/99 Conference Organizer and Chair, Synthetic Scaffold Biomaterials  
*IBC Conference on Orthopaedic Biomaterials, Cambridge, MA*

08/98 Organizer/Chair  
*NMHCC Conference on Orthopaedic Tissue Engineering, Boston, MA*

04/98 Chair, Session on Scaffolds  
*24th Annual Meeting of the Society for Biomaterials, San Diego, CA*

02/98 Program Chair  
*17th Southern Biomedical Engineering Conference, San Antonio, TX*

11/97 Session Chair on Orthopaedic Biomaterials  
*AICHE, Los Angeles, CA*

04/97 Session Chair on Wear and Orthopaedic Biomaterials  
*23rd Annual Meeting of the Society for Biomaterials, New Orleans, LA*

12/96 Session Chair on Material Sciences  
*Inaugural Meeting of the Tissue Engineering Society, Orlando, FL*

06/96 Session Chair on Wear Particulates  
*5th Biomaterials World Congress, Toronto, Canada*

04/96 Organizer/Chair, Short Course: Wear of UHMWPE and its Consequences in Total Joint Prostheses, *Society for Biomaterials, San Antonio, TX*

03/96 Session Chair on Tissue Engineering  
*15th Southern Biomedical Engineering Conference, Dayton, OH*

02/94 Session Chair on Polymers

04/93

*4th Annual Meeting of the Australian Soc. for Biomaterials, Sydney, Australia*  
Session Chair on Modular Hips  
*19th Annual Meeting of the Society for Biomaterials, Birmingham, AL*

**3d. Reviewer**

Nature - Materials  
\*Journal of Nanomedicine  
\*Journal of ASTM International (JAI)  
\*Journal of Biomedical Materials Research (Applied Biomaterials)  
\*Tissue Engineering  
\*Journal of Biomedical Materials Research  
\*e-biomed The Journal of Regenerative Medicine  
Biomaterials  
Cells and Materials  
Journal of Biomaterials Science  
Trends in Biotechnology  
Journal of Biomechanics  
Journal of Oral Implantology  
Journal of Polymer Science  
Journal of The Southern Medical Association  
Journal of Foot and Ankle Surgery

\*Editorial board

**3e. Grant Review Panels**

05/10 Member, Review Panel, Science Foundation Ireland-HRB Translational Awards, Dublin  
02/06 Member Panel for review of grants applications for NSF EPSCoR for State of Kansas  
02/05 Member, National Institutes of Health, BMBI Review Panel for Bioengineering Sciences and Technologies  
07/04 Chair, National Institutes of Health, Special Emphasis Review Panel, SBIR Grants  
04/04 Member, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
01/04 Member, National Science Foundation, Review Panel for the Biomedical Engineering  
12/03 Chair, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
08/03 Chair, National Institutes of Health Review Panel, Biomaterials RFA Grants  
03/03 Member, National Institutes of Health, Special Emphasis Review Panel, SBIR Grants  
07/03 Member, National Institutes of Health, Special Emphasis Review Panel, SBIR Grants  
01/03 National Science Foundation, Review Panel for the Biomedical Engineering and Research to Aid the Disabilities Grant Proposals  
11/02 Chair, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
07/02 Chair, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
03/02 Chair, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
11/01 Member, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
07/01 Member, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
07/00 Member, National Institutes of Health Special Emphasis Review Panel, SBIR Grants  
05/95 Member, National Institutes of Health Special Emphasis Review Panel, NIAMS Grants

**3f: Continuing Education Seminars**

04/94 'Advances in Biomaterials' Continuing Education Course on Uncemented Total Joint Arthroplasty, San Antonio, Texas

**3g: Courses/Seminars Organized:**

1992-1996 Sole responsibility for organizing 65 seminars by local, national, and international speakers at UTHSCSA and Southwest Research Institute

**D. Institutional Committees:**

**Department of Orthopaedics (UTHSCSA)**

1996-1999 Promotions and Tenure Committee  
1993-2000 Task Force to Develop Clinical Orthopaedic Faculty Research  
1993-2000 Task Force for Increasing Research Capabilities



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1993-2000 Task Force for Increasing Inter-Institutional Research Collaborations

**College of Engineering (UTSA)**

2004-2005 Chair, Faculty Search Committee 2 professor positions in Biomedical Egr.  
2003-2005 Chair, Web site committee  
2003-2005 Chair, Faculty search committee for Endowed Chair in Biomechanics and Endowed Professor in Biomaterials

**University Level**

2017 Co-Chair, President's task force on Student Credit Hour optimization  
2017 Co-Chair, Tuition and Fee Committee  
2017 Member, President's task force on Student Success  
2017 Member, President's task force on Institutional Financial Model  
2017 Member, President's task force on Strategic Enrollment Management  
2012-2013 Chair, Search Committee for Dean, College of Business, UTSA  
22012-2013 Chair, Search Committee for Dean, College of Business, UTSA  
009-present Lab Safety Committee  
2009-2011 Sustainability Task Force  
2008 Member, Search Committee for Director, Institute of Texan Cultures, UTSA  
2007-2008 Campus Master Plan Committee  
2005-2013 Member, Dean's Council  
2005-present Member, Provost's Council  
2004-2007 Member, Strategic Planning Committee  
2004 Member, Search Committee for Professor, Restorative Dentistry, UTHSCSA  
2004-2005 Member, New Facilities Planning Committee, UTSA  
2003-2005 Member, Task Force for Technology Transfer, UTSA  
2001-2002 Member, Search Committee for Chair, Restorative Dentistry, UTHSCSA  
2000-2003 Chair, Committee for joint UTSA/UTHSCSA biomedical engineering graduate program  
*Dr. Agrawal was the lead in developing the curriculum and administrative structure for this program.*  
  
2000-2003 Chair, Institutional Intellectual Property Advisory Committee, UTHSCSA  
1999-2000 Institutional Intellectual Property Advisory Committee, UTHSCSA  
1995-1998 Medical School Admissions Committee, UTHSCSA  
1994-1996 Chair, Instrumentation Services Committee, UTHSCSA  
1994-1995 LCME Self-Study/General Facilities Committee, UTHSCSA  
1993-1996 Member, Instrumentation Services Committee, UTHSCSA  
1997 Member, Faculty Search Committee, Dental Biomaterials, UTHSCSA

**University System Level**

2013-2014 Member, University of Texas System Task Force on Implementation Plan for Engineering  
2012-2013 Member, University of Texas System Task Force on Engineering

**D. Administrative Responsibilities:**

**Department Level**

2002-2005 Director, Joint BME graduate program UTSA/UTHSCSA  
1997-2005 Director, Orthopaedic Bioengineering  
1991-1997 Director, Orthopaedic Biomaterials

**University Level**

2016-present Interim Provost and Vice President for Academic Affairs, UTSA  
2014-2016 Vice President for Research, UTSA  
2013-2014 Interim Vice President for Research, UTSA  
2006-2013 Dean, College of Engineering, UTSA  
2005-2006 Interim-Dean, College of Engineering, UTSA  
2004-2010 Director, Institute for Bioengineering and Translational Research  
2004 Chair, Business Board, Office of Technology Ventures, UTHSCSA  
2003-2005 Associate Dean for Graduate Studies and Research, College of Engineering, UTSA  
2003-2005 Director, Biomedical Engineering, UTSA/UTHSCSA  
2002-2003 Chair, Business Advisory Council, Office of Technology Ventures, UTHSCSA

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2000-2001	Chair, Institutional Intellectual Property Advisory Committee, UTHSCSA
2000-2005	Director, UTHSCSA Center for Clinical Bioengineering
1998-2000	Director, Musculoskeletal Bioengineering Center
1992-1997	Assistant Director for Research, NSF-Center for the Enhancement of Biology-Biomaterials Interface
1994-1996	Chair, Instrumentation Services Committee, The University of Texas Health Science Center at San Antonio

**Staff and Personnel Supervised:**

- 2016-present: Responsible for the Office of the Provost and Vice President for Academic Affairs which has >2,000 faculty and staff and ~\$180M in budget.
- 2013-2016: Responsible for the Office of the Vice President for Research ~76 staff. The office provided support and enabled UTSA's \$80+ million research and sponsored programs enterprise.
- 2005-2013: Overall responsibility for the College of Engineering at UTSA with ~2700 students (approx. 2300 undergraduates and 400 graduates), 80 faculty, 4 departments, 3 Ph.D., 6 M.S., and 3 B.S. programs.

**V. OTHER INFORMATION**

**A. US Patents Issued (Several licensed to industry. Additional 14 US and foreign pending)**

1. US20130218253: Scaffold system for tissue repair: Notice of allowance received 2015. Licensed.
2. Patent #7,803,393: Preparing an implant by gas-plasma treatment of a substrate to couple cells. Issued 2010
3. Patent: *Method and Apparatus for Stent Deployment with Enhanced Delivery of Bioactive Agents*. Issued 2007.
4. Patent: #6,767,330 B2 *Foot temperature and health monitoring system*. Issued 2004. Assigned.
5. Patent: #6,398,740 B1 *Apparatus and method for monitoring the temperatures on the plantar aspects of a human foot and other vital health information*. Issued 2002
6. Patent #6,255,359 B1: *Permeable compositions and methods for their preparation*. Issued 2001.
7. Patent #6,187,329 B1: *Variable permeability bone implants, methods for their preparation and use*. Issued 2001. Licensed
8. Patent #6,065,476: *Method of enhancing surface porosity of biodegradable implants*. Issued 2000.
9. Patent #5,947,893: *Method of making porous prosthesis with biodegradable coatings*. Issued 1999.
10. Patent #5,876,446: *Porous prosthesis with biodegradable material impregnated interstitial spaces*. Issued 1999.
11. Patent #5,836,949: *Bioabsorbable intramedullary implant systems and methods of use*. Issued 1998.
12. Patent #5,741,329: *Method of controlling the pH in the vicinity of biodegradable implants*. Issued 1998. Licensed
13. Patent #5,702,466: *Novel bone prosthesis*. Issued 1997.
14. Patent #5,492,697: *Biodegradable implant for fracture nonunions*. Issued 1996. Licensed

**B. Technology/Entrepreneurship**

Dr. Agrawal conceived of and started the Center for Innovation and Technology Entrepreneurship (CITE) at UTSA – a collaboration between the Colleges of Business and Engineering. CITE now holds a \$100k technology start-up competition for undergraduates and has helped launched several companies in the San Antonio area.

Dr. Agrawal's work has resulted in several patents, which have been licensed to commercial entities. His bioengineering research group has been responsible for the launching of several companies in San Antonio. His technology was licensed to Osteobiologics (later bought by Smith and Nephew, Ltd). He co-founded Xilas Medical, Inc (later Diabetica). Most recently Dr. Agrawal has co-founded CardioVate, Inc., a company with the goal of repairing aortic aneurysms. In 2007 he was awarded the Chancellor's Entrepreneurship and Innovation Award from the University of Texas System and the Healthcare Hero Award for biomedical research by the San Antonio Business Journal.

In 2008 Dr. Agrawal was appointed by Texas Governor Rick Perry to serve on the Texas Emerging Technology Fund (ETF) Advisory Committee. This Committee makes recommendations to the Governor on

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making investments from the \$200 million ETF in start-up technology companies as well as in special projects for universities in Texas.

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## APPENDIX

### Papers (Refereed Journals)

1. Starr P, **Agrawal CM**, Bailey S. 2016. Biocompatibility of common polyimides with human endothelial cells for a cardiovascular microsensors. *J Biomed Mater Res Part A* 104A: 406–412, 2016.
2. Starr, **C. M. Agrawal**, S. Bailey, "Evolution of Micromachined Pressure Transducers for Cardiovascular Applications", *Sensors and Actuators A: Physical*, Volume 225: 8-19, 2015.
3. Amita R. Shah, Joseph C. Wenke, **C. Mauli Agrawal**, Manipulation of Human Primary Endothelial Cell and Osteoblast Co-Culture Ratios to Augment Vasculogenesis and Mineralization, *Annals of Plastic Surgery*, Aug. 2014
4. Anand Srinivasan, Celia Macias Gupta, **C. Mauli Agrawal**, Kai P. Leung, Jose L. Lopez-Ribot, Anand K.Ramasubramanian, Drug susceptibility of matrix-encapsulated *Candida albicans* nano-biofilms, *Biotechnology and Bioengineering*, Volume 111, Issue 2, Pages: 418–424, 2014
5. Beili Zhu, Steve Bailey, **C. Mauli Agrawal**, Calcification of Primary Human Osteoblast Cultures under Flow Conditions using Polycaprolactone Scaffolds for Intravascular Applications, *Journal of Tissue Engineering and Regenerative Medicine*, Oct: 6(9):687-695, 2012
6. Amita Shah, Sarita Shah, Sunho Oh, Joo Ong, Joseph Wenke, **C.M. Agrawal**, Migration of co-cultured endothelial cells and osteoblasts in composite hydroxyapatite/poly(lactic acid) scaffolds, *Annals of Biomedical Engineering*, Volume: 39 Issue: 10 Pages: 2501-2509. 2011
7. Tim Brown, Qi-Bin Bao, **C. Mauli Agrawal**, Nadim James Hallab, "An In Vitro Assessment of Wear Particulate Generated from NUBAC, A PEEK on PEEK Articulating Nucleus Replacement Device. Methodology and Results from a Series of Wear Tests Using Different Motion Profiles, Test Frequencies and Environmental Conditions", *Spine*, 36(26), 1675-1685, 2011.
8. Kaufmann C, Mani G, Marton D, Johnson DM, **Agrawal CM**. "Long-Term Stability of Self-Assembled Monolayers on Electropolished L605 Cobalt Chromium Alloy for Stent Applications". *J. Biomedical Materials Research -B*, v 98B (2), 280–289, 2011.
9. Beili Zhu, Steve Bailey, **C. Mauli Agrawal**, "Development of a Total Atherosclerotic Occlusion with Cell-Mediated Calcium Deposits in a Rabbit Femoral Artery using Tissue Engineering Scaffolds", *Journal of Tissue Engineering and Regenerative Medicine*, 6(3), 193-204, 2012.
10. R. Vasita, Gopinath Mani, **C. Mauli Agrawal**, Dharendra S Katti, "Surface hydrophilization of electrospun PLGA micro-/nano-fibers by blending with Pluronic® F-108", *Polymer*, Volume: 51, Issue: 16, 3706-3714, 2010.
11. Zhu B, Bailey SR, **Agrawal CM**. Manuscript "Engineering Calcium Deposits on Polycaprolactone Scaffolds for Intravascular Applications using Human Primary Osteoblasts" *Journal of Tissue Engineering and Regenerative Medicine*, 5 (4), 324-336, 2011
12. Shah, A., Shah, S., Mani, G., Wenke, J., **Agrawal CM.**, "Endothelial Cell Behavior on Gas Plasma Treated PLA Surfaces: the Roles of Surface Chemistry and Roughness", *J. Tissue Engineering and Regenerative Medicine*, 5(4) 301-312, 2011.
13. Mani G, Macias CE, Feldman MD, Marton D, Oh S, **Agrawal CM**. "Delivery of Paclitaxel from Cobalt-Chromium Alloy Surfaces Without Polymeric Carriers", *Biomaterials*, 31: 5372-5384, 2010.
14. Kaufmann C, Mani G, Marton D, Johnson DM, Agrawal CM. "Long-Term Stability of Self-Assembled Monolayers on 316L Stainless Steel". *Biomedical Materials*, Volume: 5 Issue: 2, 2010.
15. Torres N, Oh S, Appleford M, Dean DD, Jorgensen JH, Ong JL, **Agrawal CM**, Mani G. "Effect of Sterilization Methods on the Stability of Anti-bacterial Self-Assembled Monolayers on Hydroxyapatite". *Acta Biomaterialia*, 6(8), 3242-3255, 2010.
16. Mani G, Feldman MD, Oh S, **Agrawal CM**. "Surface Modification of Cobalt-Chromium-Tungsten-Nickel Alloy Surfaces Using Octadecyltrichlorosilanes", *Applied Surface Science*, Vol: 255 (11), 5961-5970, 2009.
17. G. Mani, Chandrasekhar B, Feldman MD, Patel D, **Agrawal C.M**. "Interaction of Endothelial Cells with Self-Assembled Monolayers for Potential Use in Drug-Eluting Coronary Stents". *Journal of Biomedical Materials Research Part B: Applied Biomaterials*, 2008.
18. Kose N, Mabrey JD, Wang X, **Agrawal C.M.**, Smooth uncemented femoral stems do not provide torsional stability of femurs with cortical defects, *Eklemleri Hastaliklari Ve Cerrahisi-Joint Diseases And Related Surgery* 19(2), 66-71, 2008.

19. Mani G, Johnson DM, Marton D, Feldman MD, Patel D, Ayon A, **Agrawal C.M.** Drug Delivery from Gold and Titanium Surfaces Using Self-Assembled Monolayers, *Biomaterials* 29 (34), 4561-4573 2008.
20. Mani G, Johnson DM, Marton D, Dougherty V, Feldman M, Patel D, Ayon A, **Agrawal C.M.**, Stability of Self-assembled Monolayers on Titanium and Gold, *Langmuir*, 2008; 24(13): 6774-6784.
21. Mahapatro, Anil; Johnson D. M., Patel, D. N., Feldman M. D., Ayon A. A., and **Agrawal C. M.**, Drug Delivery from Therapeutic Self-assembled Monolayers (T-SAMs) on 316L Stainless Steel, *J. Medicinal Chemistry*, 8(4), 281-289, 2008.
22. Alves, C.M., Yang, Y., Carnes, D.L., Ong, J.L., Sylvia, V.L., Dean, D.D., **Agrawal, C.M.**, Reis, R.L., Plasma, Surface Modification of Poly(D,L-Lactic Acid) as a Tool to Enhance Protein Adsorption and the Attachment of Different Cell Types, *J. Biomedical Materials Research – Part B*: 87(1), 59-66, 2008.
23. Lin, Merry L. Lindsey, Beili Zhu, **C. Mauli Agrawal**, and Steven R. Bailey, Effects of Surface Modified Scaffolds on the Growth and Differentiation of Mouse Adipose-Derived Stromal Cells, *J. Tissue engineering and Regenerative Medicine*, Vol1 (3), 211-217, 2007
24. G. Mani, M. Feldman, D. Patel, **C. M. Agrawal**, Coronary Stents: A Materials Perspective, *Biomaterials*, 28(9), 1689-1710, 2007.
25. Lavery, L.; Higgins, K.; Lanctot, D.; Constantinides, G.; Zamorano, R.; Athanasiou, K.; Armstrong, D.; **Agrawal, C.**; Preventing diabetic foot ulcer recurrence in high-risk patients: the use of temperature monitoring as a self-assessment tool, *Diabetes Care*, 30:14-20, 2007.
26. Alves, C.M., Yang, Y., Carnes, D.L., Ong, J.L., Sylvia, V.L., Dean, D.D., **Agrawal, C.M.**, Reis, R.L., Modulating Bone Cells Response onto Starch-based Biomaterials by Surface Plasma Treatment and Protein Adsorption, *Biomaterials*, 28, 307-315, 2007.
27. Paruchuru, S.P.; Wang, X.; **Agrawal, C.M.**: Use of compact sandwich specimen to determine the critical strain energy release rate of bone. *Journal of Biomedical Materials and Engineering*. Vol. 17, No. 4, pp. 249-253, 2007.
28. W. Chen, Y. Liu, H.S Courtney, M. Bettenga, **C.M. Agrawal**, J.D. Bumgardner and J.L. Ong, "In vitro anti-bacterial and biological properties of magnetron co-sputtered silver-containing hydroxyapatite coating", *Biomaterials*, 27(32), 5512-5517, 2006.
29. Arturo A. Ayon, Michael Cantu, Kalpana Chava, **C. Mauli Agrawal**, Marc D Feldman, Dave Johnson, Devang Patel, Denis Marton and Emily Shi, "Drug loading of nanoporous TiO<sub>2</sub> films", *J. Biomed. Mater.*, 1 L11-L15, 2006.
30. Anil Mahapatro, David M. Johnson, Devang N. Patel, Marc D. Feldman, Arturo A. Ayon, and **C. Mauli Agrawal**; "Stability of Functional Self Assembled Monolayers (SAMs) on 316L Stainless Steel", *Journal of Nanomedicine, Nanotechnology, Biology and Medicine*, v 2(3), 182-190, 2006.
31. Fischer, K.J.; Vikoren, T.H.H.; Ney, S.; Kovach, C.; Hasselman, C.; **Agrawal, C.M.**; Rubash, H.; Shanbhag, A.S.: Mechanical evaluation of bone samples following alendronate therapy in healthy male dogs. *Journal of Biomedical Materials Research Part B-Applied Biomaterials* 76b (1): 143-148 Jan 2006.
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### Conference Papers

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2. Pandya SG, **Agrawal CM**, "Non-covalent Surface Modification of Erythrocytes: Study of Binding Strength and Effect on Membrane Integrity", *Society for Biomaterials Annual Meeting and Exposition*, Denver CO, 2014.
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4. Pandya SG, Abdelaziz EK, **Agrawal CM**, "A Comparative Study of The Effects of Different Biotinylation Reagents on The Membrane Fluidity of Red Blood Cells", *Annual Meeting of the Biomedical Engineering Society*, Seattle, WA, #431, 2013.
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6. Macias CE, Mani G, Feldman MD, **Agrawal CM**, "Release of Paclitaxel from Cobalt-Chromium Surfaces Controlled by Metal Coatings." *Society for Biomaterials 2012 Fall Symposium*, New Orleans, #198, 2012.
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8. Massey, J., Bailey, S., **Agrawal, C. M.**, "Electrospun Scaffolds with Gradient Morphology for use in Endovascular Aortic Aneurysm Repair", *Society for Biomaterials 2011 Annual Meeting and Exposition*, April 2011.
9. Macias CE, Mani G, Feldman MD, **Agrawal CM**, "Drug Eluting Stents: Controlled Drug Release Using Metal Coatings." *Society for Biomaterials Annual Meeting and Exposition*, Orlando, FL. April 13-16, 2011.
10. A.R. Shah, J.C. Wenke, and **C.M. Agrawal**, "Effect of Endothelial Cell and Osteoblast Co-culture Ratios on Angiogenesis and Mineralization", *Annual Meeting of the Biomedical Engineering Society*, Austin 2010.
11. J. Carter and **C.M. Agrawal**, "Using X-Ray Tomography to get a Three-dimensional Representation of Cell Growth in Scaffolds", *Annual Meeting of the Biomedical Engineering Society*, Austin 2010.
12. C. R. Kaufmann, G. Mani, and **C. M. Agrawal**, "Drug Delivery Potential of Self-Assembled Monolayers on Electropolished L605 Cobalt Chromium Alloy", *Annual Meeting of the Biomedical Engineering Society*, Austin 2010.
13. W. Fan, G. Mani, J. Luo, D. Marton, E. A. Sprague, M. D. Feldman, and **C.M. Agrawal** "Dexamethasone Modified Self Assembled Monolayers on Smooth and Rough CoCr: An in Vitro Study for Drug Delivery", *Annual Meeting of the Biomedical Engineering Society*, Austin 2010.
14. Shadaram, M., Kristi Meyer, and **C. Mauli Agrawal**, "Strategies for math enrichment to better prepare students for engineering curricula," *ASEE GSW Conference*, Lake Charles, LA, March 24-26, 2010.
15. Shadaram, M., Rolando Quintana, Kristi Meyer, and **C. Mauli Agrawal**, "A Comprehensive approach to improve retention and graduation rates for underrepresented students in the College of

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- Engineering," *Texas Engineering and Technology Consortium – Technology Workforce Development, Best Practices Conference*, Austin, TX, February 11-13, 2009.
16. A. R. Shah, J. C. Wenke, **C. M. Agrawal**, "Endothelial Cell/Osteoblast Coculture Ratios for Angiogenesis and Bone Formation", *Annual Meeting of the Society for Biomaterials*, San Antonio, TX, #454, 2009.
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